

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 16 - 28 (cancelled):

Claim 29 (currently amended): ~~The method of claim 23, further comprising~~ A method of producing a clarified cell lysate comprising plasmid DNA from an alkaline bacterial cell lysate, comprising the steps of:

introducing a suspension of bacterial cells into a fluid flow comprising an alkaline lysis buffer and an entrainment of gas, wherein the cells are flowably mixed with the cell lysis buffer together with the gas thereby forming a cell lysis mixture;

introducing a precipitation buffer into the fluid flow comprising the cell lysis mixture, thereby forming a precipitated lysate;

introducing a pH adjustment buffer into the precipitated lysate and combining the pH adjustment buffer and the precipitated lysate prior to separating the mixture; ~~into the buoyant flocculent phase and the fluid phase comprising a substantially clarified cell lysate.~~

separating the mixture into a buoyant flocculent phase comprising precipitated cell debris and a fluid phase comprising a substantially clarified cell lysate; and
isolating the substantially clarified cell lysate.

Claim 30 (currently amended): ~~The method of claim 23, wherein the separation of the mixture into a buoyant flocculent phase and a fluid phase is performed in~~ A method of producing a clarified cell lysate comprising plasmid DNA from an alkaline bacterial cell lysate, comprising the steps of:

introducing a suspension of bacterial cells into a fluid flow comprising an alkaline lysis buffer and an entrainment of gas, wherein the cells are flowably mixed with the cell lysis buffer together with the gas thereby forming a cell lysis mixture;

introducing a precipitation buffer into the fluid flow comprising the cell lysis mixture, thereby forming a cell debris precipitate in the cell lysis mixture;

introducing the cell lysis mixture including the cell debris precipitate into a lysate separation tank[.] and separating the mixture into a buoyant flocculent phase comprising the precipitated cell debris and a fluid phase comprising a substantially clarified cell lysate, and isolating the substantially clarified cell lysate.

Claim 31 (cancelled):

Claim 32 (previously presented): A method of producing a clarified cell lysate comprising plasmid DNA from an alkaline bacterial cell lysate, comprising the steps of:

introducing a suspension of bacterial cells into a fluid flow comprising an alkaline lysis buffer and an entrainment of gas and flowably mixing the cells with the cell lysis buffer together with the gas by passage through a first static mixer, thereby forming a cell lysis mixture;
introducing a precipitation buffer into the fluid flow comprising the cell lysis mixture and flowably mixing the cell lysis mixture with the precipitation buffer by passage through a second static mixer, thereby forming a cell debris precipitate in the cell lysis mixture;
introducing a pH adjustment buffer into the fluid flow comprising the cell debris precipitate and flowably mixing the cell lysis mixture with the pH adjustment buffer by passage through a third static mixer, thereby forming a pH adjusted cell lysis mixture;
flowing the pH adjusted cell lysis mixture into a lysate separation tank for separating the cell lysis mixture into a buoyant flocculent phase comprising the precipitated cell debris and a fluid phase comprising a substantially clarified cell lysate;
obtaining the substantially clarified cell lysate from under the buoyant flocculent phase; and
filtering the substantially clarified cell lysate to form a clarified cell lysate.

Claim 33 (previously presented): The method of claim 32, wherein the gas is introduced via a gas port through which a gas is forced under pressure into the fluid flow thereby controllably forming bubbles in the cell lysis mixture.

Claim 34 (previously presented): The method of claim 33, wherein the gas port comprises an aperture comprising a plurality of pores.

Claim 35 (previously presented): The method of claim 34, wherein the pores have an average diameter of less than approximately 5 microns.

Claim 36 (previously presented): The method of claim 34, wherein the aperture comprising a plurality of pores is a sparge stone or disk filter comprising pores having an approximate average diameter of 2 microns or less.